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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,848	11/19/2003	Manabu Takahashi	60188-705	3964

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EXAMINER

STEVENSON, ANDRE C

ART UNIT PAPER NUMBER

2812

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/715,848

Applicant(s)

TAKAHASHI ET AL.

Examiner

Andre' C. Stevenson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 4-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/19/03 & 1/05/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **Detailed Action**

### ***Election/Restrictions***

Applicant's election without traverse of Group I, species 1, figures 1 and 2, reading on claims 1-3, in the reply filed on November 19, 2004, is acknowledged.

Claims 4-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on November 19, 2004.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on November 19, 2003 was filed before the first action on the merits. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

The information disclosure statement (IDS) submitted on January 05, 2005 was filed after the mailing date of the restriction requirement on October 21, 2004. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Objection to Drawings***

Figures 11 through 15 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Ying et al. (U.S. Pat. No. 6,535,402 B1, Patented 03/18/03, Filed 07/12/02).

Ying substantially shows the claimed invention, as shown in figures 1-10 and corresponding text, in a device comprising, **pertaining to claim #1**, a complementary PWM

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signal generation unit (**column 3, lines 59-67; column 4 lines 1-6**) for generating a first PWM signal and a second PWM signal (**column 4, lines 35-46**) corresponding to an inverted signal of said first PWM signal (**column 4, lines 7-35**); and a dead time addition unit for adding a first dead time at a rise of said first PWM signal and a second dead time at a rise of said second PWM signal (**column 4, lines 35-46**), wherein said first dead time and said second dead time are individually settable in said dead time addition unit (**column 4, lines 42-46; column 3, lines 52-67; column 4, lines 1-6**). *Pertaining to claim #2*, Yang shows, wherein the semiconductor device of Claim 1 wherein said dead time addition unit includes: a dead time timer; and first and second dead time set registers (**column 5, lines 33-44; column 6, lines 33-40, lines 44-50**), and time elapsing until a value of said dead time timer reaches a set value of said first dead time set register is set as said first dead time (**column 5, lines 33-44**), and time elapsing until the value of said dead time timer reaches a set value of said second dead time set register is set as said second dead time (**column 4, lines 42-46; column 7, lines 23-29**). *Pertaining to claim #3*, Yang shows, the semiconductor device, wherein said first and second dead time set registers are serially disposed (**column 4, lines 6-18, 35-47, lines 52-56**). Examiner notes that Yang does not explicitly state “dead time set registers are serially disposed”. However, Yang does say, in column 4 line 10 through 15, that “the point in time of the polarity change in the dead time compensation signal is auto-adjusted in response to the detected bias current crossing points and is essentially asynchronous with reference to zero crossing points of the output current feedback or the output current reference. The dead time compensation signal is adjusted instantly in response to the detected bias current crossing points and the shape of it deviates from original compensation signal”. The Examiner is convinced that Yang’s teaching of the response to the

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first dead time (the second dead time), being dependent on the point in time of the polarity change, and being auto adjusted in an asynchronous manor, shows exactly the meaning of dead time registers being serially disposed.

### Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure; Wilson (U.S. Pat. No. 5,764,024), Thomas (U.S. Pat. No. 6,841,983), Kernahan et al. (U.S. Pat. No. 6,825,644), Batarseh et al. (U.S. Pat. No.6,836,414), Kernahan et al. (U.S. Pat. No.6,801,028), Kernahan et al. (U.S. Pat. No.6,819,011).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre' Stevenson whose telephone number is (571) 272 1683. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt, can be reached on (571) 272 1873. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956. Also, the proceeding numbers can be used to fax information through the Right Fax system;

**(703) 872-9306**

Andre' Stevenson

02/11/05



**MICHAEL LEBENTRITT**  
**SUPERVISORY PATENT EXAMINER**